

# FIGURE 1

(a) Chimeric oligonucleotide  
(Double modification: RNA residues between two modifications being made)

CGGAA1CGTCGA1TGGCA1TGGCGTCTTCAcagcugcugucAAcGACCGcaauuGCCATTccagcauucccccGCGCT1TTCCGCC

(b) Active oligonucleotide conformation

TCCGCC-ccccuuacgacctTACCGcuuaegCCAAGAACugucguacat  
T T  
TCCGCC GCGGATCTGTGAATCCCATCGGTCCTTGACAGCACCTTT  
T T  
GlyAsnIaGlyYIleAlaMetArgSerLeuThrAlaIalaVal

## FIGURE 2

(a) Chimeric oligonucleotide  
(Double Modification: DNA residues between two modifications being made)

5' GCGAATGCTGGATGGCATGCGGTCCTTGACAGCAGCTGTTTaaagcugcugucuaAGACCGCATTGCCATTccagcauuccccccgCGCTTTTGGCCC

(b) Active oligonucleotide conformation

TGCGCG - ccccuacgacctTAGCGTTACGCCAGCAGcugcugcaat	
T	T
T	T
TGCGCG GCGAATGCTGGA <u>TGGCA</u> TGCGGTCCTTGACAGCAGCTGTT	
GlyAsnAlaGlyIleAlaMetArgSerLeuThrAlaIleVal	

## FIGURE 3

(a) Chimeric oligonucleotide  
(Single modification: Thr => Ile being made)

5'-GGAAATCGCTGGAATCGCCAAATGCGGCCCATTTTuggcgcgcaauuGCGATTccagcauuccGCGCGTTTTCGCGC

(b) Active oligonucleotide conformation

TCGGCC-cctuaagaccTTAGCGuuaacyccggut  
T T  
TCGGCC CGATTCCTGCATTCGCNATCGGCCAT T  
T  
AsnAlaGlyTlalaIamelaArgPro

# FIGURE 4

(a) Chimeric oligonucleotide  
(Single modification: Pro => Ser being made)

5' ACTGCAATCGCGTCTTGACACGACGCTTTTtagcugcugucAAGACGcauugcagucGCCGCTTTTCGCCC

(b) Active oligonucleotide conformation

TCGCGC-ugacgCCAGCAacugucgagAT  
T T  
T TCGCGC ACTGCAATCGCGTCTTGACACGACGCTT  
T T  
ThrAlaMetArgSerLeuThrAlaAla

**FIGURE 5**

(a) Chimeric oligonucleotide  
(Single modification: Ser => Asn being made)

5'CTATGATCCCTAATGGTGGGCTTTTTTTaaagcccccacCATTAagggaucauagGCGCGTTTTCGGCGC

(b) Active oligonucleotide conformation

TGCGCG-gauacuagggATTACcaccccgaaT  
T  
T  
TCGCGC CTATGATCCCTAATGGTGGGCTTTT  
T  
5'MetIleProAsnGlyAla

FIGURE 6

(a) Chimeric oligonucleotide  
(Single modification: Pro => Ala being made)

5' ACGGACAGGTGGCCGACGCATGATTTTccaugcgucgCGCCAccuuguccgCGCGTTTTCGCGC

(b) Active oligonucleotide conformation

TGCGCG-ugcccuguccACCGCGcgucguactT  
T T  
T T  
TCGCGC ACGGACAGGTGGCCGACGCATGAT  
5' ThrGlyGlnValAlaArgMet

(a) Chimeric oligonucleotide  
(Single modification: *Ter* => Tyr being made)

5' GACGCAGATCTAGCTACCACTGCTCCTTTTtgacgauguaGCTAgaucugcgcGCCGTTTTCGGCC

(b) Active oligonucleotide conformation

TGGCGC-cugcgucuaGATGCAugua<sup>T</sup>gcaggt<sup>T</sup>  
T<sup>T</sup>  
TCGGCG GACGCAGATCTAGCTACCACTGCTCCT<sup>T</sup>  
5'ThrGlnIleTyrValProSerSer

1. *Chlorophyll* (green)  
 2. *Carotene* (yellow)  
 3. *Xanthophyll* (orange)  
 4. *Phycocyanin* (blue)  
 5. *Phaeophytin* (brown)  
 6. *Phaeoerythrin* (red)  
 7. *Peridinin* (red)  
 8. *Alloxanthin* (yellow)  
 9. *Diatoxanthin* (yellow)  
 10. *Diadinoxanthin* (yellow)  
 11. *Chlorophyll* (green)  
 12. *Carotene* (yellow)  
 13. *Xanthophyll* (orange)  
 14. *Phycocyanin* (blue)  
 15. *Phaeophytin* (brown)  
 16. *Phaeoerythrin* (red)  
 17. *Peridinin* (red)  
 18. *Alloxanthin* (yellow)  
 19. *Diatoxanthin* (yellow)  
 20. *Diadinoxanthin* (yellow)

FIGURE 8

(a) Chimeric oligonucleotide

5' GGAATGCTGGATTGCAATGCGGTCATTGACAGTTTcugucaaugaccgcauugCAATccagcauuccgCGCTTTTCGCGC

(b) Active oligonucleotide conformation

TGCGCG-ccuuacgaccttaacguuacgCCAGUaacuguct  
T T  
T T  
TCGCGC GGAATGCTGGATTGCAATGCGGTCATTGACAGT  
AsnAlaGlyIleAlaMetArgSerLeu

One nucleotide modification (underlined) at each of two amino acid targets (bold) in maize EPSPS gene; first target region within RNA, second target region within DNA.



FIGURE 9

(a) Chimeric oligonucleotide

5' GGAATGCTGGATTGCAATGCGGCCTTTTggccgcauugCAATccagcauuccGGCGTTTCGGCC

(b) Active oligonucleotide conformation

TCGCGC-ccuuacgacCTTAACguuacgccgT  
T T  
T T  
TCGCGC GGAATGCTGGATTGCAATGCGGCCT  
AsnAlaGlyIleAlaMetArgPro

One nucleotide modification (underlined) at one amino acid target (bold).

FIGURE 10

(a) Chimeric oligonucleotide

5' ACTGCATGCGGTCATGACAGCAGTTTTCugcugucaatTGACCGcauugcagUGCGGTTTCGGCC

(b) Active oligonucleotide conformation

TGCGCG-ugacguuacgCCAGTacugcguCT  
T T  
T T  
TCGGCG ACTGCATGCGGTCATGACAGCAGT  
ThrAlaMetArgSerLeuThrAla

One nucleotide modification (underlined) at one amino acid target (bold).

FIGURE 11

(a) Chimeric oligonucleotide  
(Single modification: Ser => Asn being made)

5'CTATGATCCCTAATGCGTGGGCTTTTAAAGCCCCCACTTAGggaucauagCCGCTTTTCGGCGC

(b) Active oligonucleotide conformation

TCGGCG-gauacuaggAATTACcaccgcgaat  
T  
T  
TCGGCG CTATGATCCCTAATGCGTGGGCTTTT  
5'MetIleProAsnGlyAla

FIGURE 12

(a) Chimeric oligonucleotide  
(Single modification: Pro => Ala being made)

5'ACGGACAGGTGGCGGACGCGATGATTTTcaugcgucgCGCCAccuugccguGCGGTTTTCGGCC

(b) Active oligonucleotide conformation

TGCGCG-ugcccuugccACCGcgcuugcuactT  
T T  
T T  
TCGGCG AC GGACAGGTGGCGGACGCGATGAT  
5'ThrGlyGlnValAlaArgMet

FIGURE 13

(a) Chimeric oligonucleotide  
(Single modification: *Ter* => *Tyr* being made)

5' GACGCAGATCTAGGTACCATCGTCCCTTTggaaggauguaCGTAgaucugcgucGGGTTTTCGGGC

(b) Active oligonucleotide conformation

          TGGCGG-cugcgucuaagATGCAugguagcaggT  
          T                                  T  
          T                                  T  
          TCGGGC GACGCAGATCTAGGTACCATCGTCCCT  
          5'ThrGlnIleTyrValProSerSer